Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

Board Meeting: March 2015
Issue Date: 02/20/2015

Finance and Audit Committee Performance Metrics

State Route 99 Realignment Project
Contract No. HSR 12-06

Safety
- Authority Safety Incident Rate
- Contractor Safety Incident Rate

Cost
- Construction Support Cost
- Contingency
- Cost Performance Index (CPI)

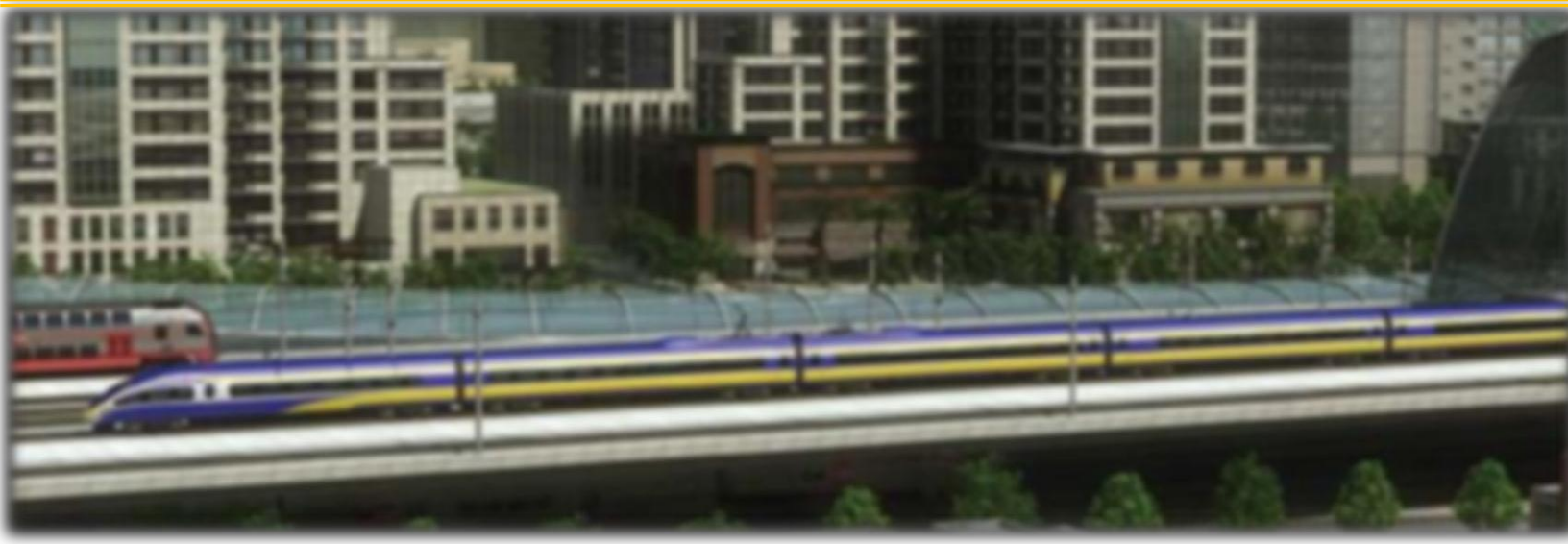
Schedule
- Schedule Performance Index (SPI)

Quality
- Construction Contract Change Orders

Economic Benefits
- Disadvantaged/Small Business Enterprise

PERFORMANCE METRICS

The following performance metrics for SR99, a Caltrans Construction Manager / General Contractor (CM/GC) project within the limits of CP1, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.
Safety is a top priority and listed first, followed by key metrics for cost, schedule, and quality, as all are fundamental metrics for the management of the project. In addition and in support of the business aspects of the project, a key metric is included for economic benefits. The Authority's management team, both on the project site and at the headquarters in Sacramento, will also review other aspects of the project's performance. The Authority will track and monitor the trends of these performance metrics to proactively manage the project.



Performance Metrics

SAFETY

Caltrans Safety Incident Rate
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]

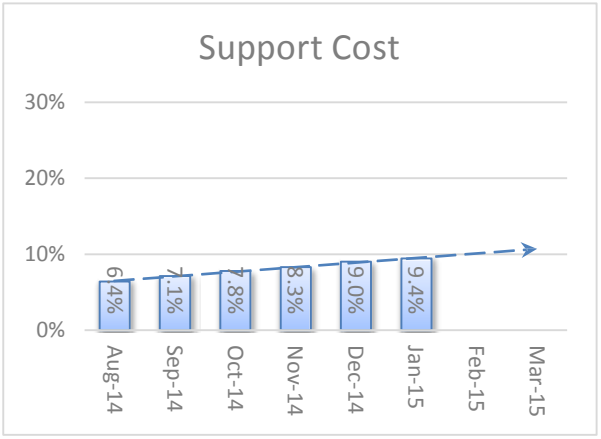
No Trend To Date
Will begin reporting in Construction Phase

Contractor Safety Incident Rate
[Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]

No Trend To Date
Will begin reporting in Construction Phase

COST

Total Support Cost
[Invoiced to Date Amount] ÷ [Total Capital Cost]

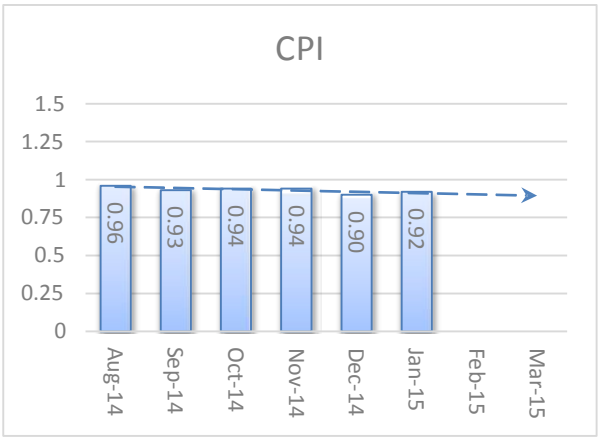


Construction Contingency
[Remaining Contingency Value] ÷ [Construction Contract Value]

No Trend to Date
Will begin reporting in Construction Phase

COST (Continued)

Cost Performance Index
[Earned Value] ÷ [Actual Cost]



Earned Value (EV) = $16,461,062;
Actual Cost (AC) = $17,938,769
Currently at 0.92, performance target is >1.0.

Reason – The earned value for the project has been lagging due to ongoing clarifications in the design and scope of work, which were established based on approx. 15% level of design. The scope of the project is becoming better defined through the resolution of pending design decisions as compared to when the budget was established. There has also been continuous Value Engineering by Caltrans and consultant staff through the design development phase that has resulted in a large effort in support costs on the front end.

Mitigation/Improvements – The project is implementing Construction Management / General Contractor (CMCG) procurement methodology that has a significant upfront effort to resolve issues and add value to the project in the design phase by obtaining the general contractor's input in the design phase. The goal is to reduce risks and minimize change orders in construction, thereby potentially reducing capital cost in the construction phase.

This metric has improved since last month due to the delivery of the 95% constructability review design package, an internal project milestone. This metric is projected to continue to improve once the outstanding decisions pertaining to design are finalized and the project moves into the construction phase.
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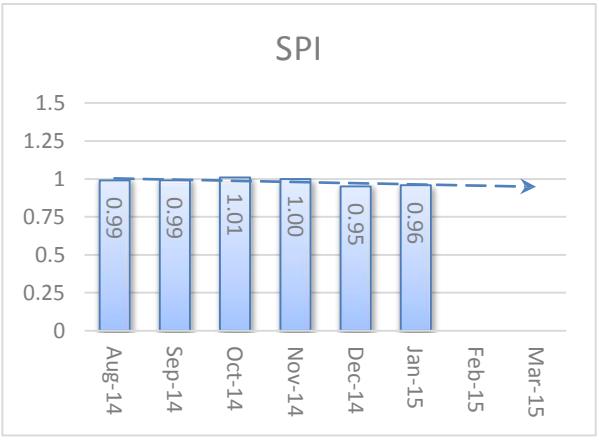
SCHEDULE

Schedule Performance Index (SPI)
[Earned Value] ÷ [Planned Value]



Earned Value (EV) = $16,461,062;
PV= Planned Value - $ 17,099,997
Currently at 0.96, performance target is >1.0.

Reason – The earned value for the project has been lagging due to ongoing clarifications in the design and scope of work, which were established based on approx. 15% level of design. The scope of the project is becoming better defined through the resolution of pending design decisions as compared to when the budget was established. There has also been continuous Value Engineering by Caltrans and consultant staff through the design development phase that has resulted in a large effort in support on the front end.

Mitigation/Improvements –The project is implementing Construction Management / General Contractor (CMCG) procurement methodology that has a significant upfront effort to resolve issues and add value to the project in the design phase by obtaining the general contractor's input in the design phase. The value engineering includes elements that will facilitate construction and provides greater flexibility in achieving the schedule.

This metric has improved since last month due to the delivery of the 95% constructability review design package, an internal project milestone. This metric is projected to continue to improve once the outstanding decisions pertaining to design are finalized and the project moves into the construction phase. Once the construction phase is implemented more opportunities to accelerate and complete the work on time will exist.

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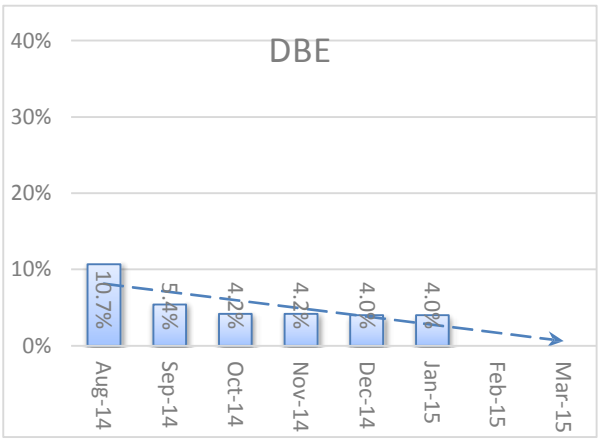
QUALITY

Construction Contract Change Orders (CCO's)
[Number of unplanned CCO's] ÷ [Construction Dollars Earned] * [5,000,000]

No Trend Data To Date
Will begin reporting in Construction Phase

ECONOMIC BENEFITS

Disadvantaged/Small Business Enterprise
[Total DBE/SBE/DVBE/MB payments to Date] ÷ [Total Subcontract payments to Date]



Total DBE/SBE/DVBE/MB payments made to date = $40,702
Total Subcontract Contract Payments made to Date = $ 1,018,761
Currently at 4.0%, performance target is 10% for the pre-construction phase.

Reason – While the project is in the pre-construction phase, the great majority of the work performed by the CMGC contractor is self-performed and the opportunities to hire Small Business (SB) subcontractors are very limited.

Mitigation/Improvements – The project target is to achieve the 30% goal by project completion. The project team set an intermediate SB goal of 10% for all subcontracts in the pre-construction phase.
The contractor has maximized the SB participation by hiring SB's for all work that is not self-performed. This metric will improve once the contractor begins to execute subcontracts for the construction phase of the project; the contractor has committed to a greater degree of small business utilization during construction to make up the current shortfall.

Performance Metrics – Explanatory Details

Category	Description
General	**Data Period**
Description	The Performance Metrics represent the period of 2/19/2013 to 01/31/2015.
Safety	**Caltrans Safety Incident Rate:** [Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]
Description	• The goal is to contain the incidence rate at ≤ 3.2. • Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2. • Caltrans has TBD incidents of recordable injury or illness to date. • Caltrans has TBD construction hours worked to date. • The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N/EH) x 200,000, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year) • Reporting for this metric will commence when construction begins
Safety	**Contractor Safety Incident Rate:** [Number of injuries and illnesses] ÷ [Employee hours worked] * [200,000]
Description	• The goal is to contain the incidence rate at ≤ 3.2. • Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2. • The Contractor has TBD incidents of recordable injury or illness to date. (Will Start reporting in the construction phase of project) • The Contractor has TBD hours worked to date. • The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: (N/EH) x 200,000, where N = number of injuries and illnesses EH = total hours worked by all employees during the calendar year 200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year) • Reporting for this metric will commence when construction begins
Cost	**Total Support Cost:** [Construction Support Cost] ÷ [Total Capital Cost]
Description	• The goal is to keep the support cost at ≤ 20% of the Capital cost. • Benchmark: The statewide average Support to Capital ratio for project development cost on the State Highway System is approx. 32% of the Capital costs for major projects. • For this project the Total Support Cost encompasses the effort required to provide Project Management, Contract Administration, Inspection and Quality Control for the Design, Right of Way and Construction phases. • Expended to date amount = $ 17,938,769 • Total Capital Cost = $ 190,000,000 • Project Total Support to Capital ratio = 9.4%

Cost	**Construction Contingency:** [Remaining Contingency Value] ÷ [Construction Contract Value]
Description	• The goal is contain the contingency to 10% of the total Construction Capital Cost. • Benchmark: Caltrans is using an alternative procurement method called CMGC. Once the project is awarded, a 10% construction contingency will be established. At baseline estimate of $110,000,000 for construction, a 10% contingency amount would equal $11,000,000 contingency. • The Remaining Contingency = [Current Allocated Contingency Amount] – [Executed Change Orders] = $TBD • The Construction Contract Value = [Construction Contract Amount] – [Monthly Progress Payment Estimates] = TBD • Reporting for this metric will commence when construction begins
Cost	**Cost Performance Index (CPI):** Earned Value (EV) ÷ Actual Cost (AC)
Description	• The goal is to achieve CPI ≥ 1, which is same as ≥ 100% when expressed in percent. • Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the CPI should be ≥ 1 or 100%. At a value of 100% the value earned is same as planned, and the project is right on cost. • EV = Percent Complete x BAC (Budget at Completion) - $ 16,461,062 • AC = Actual Costs to Date - $ 17,938,769 • Project Cost Performance Index = 0.92
Schedule	**Schedule Performance Index (SPI):** Earned Value (EV) ÷ Planned Value (PV)
Description	• The goal is to achieve SPI ≥ 1, which is same as ≥ 100% when expressed in percent. • Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be ≥ 1 or 100%. • At a value of 100% the Project is forecasted to complete on-time. • EV= Percent Complete x BAC (Budget at Completion) - $ 16,461,062 • PV= Planned Value - $ 17,099,997 • Planned Value in dollars to be spent to date is derived from the approved baseline established for the project using a linear burn rate. • Project Schedule Performance Index = 0.96
Quality	**Construction Contract Change Orders (CCO's):** [Number of unplanned CCO's] ÷ [Construction Dollars Earned] * [5,000,000]
Description	• The goal is to maintain Number of unplanned CCO's to ≤ 1.0. This represents 1 construction unplanned CCO per $5M of construction work performed. • The approved baseline schedule currently allocates approximately $110,000,000 to construction activities. This equates to an estimated 22 unplanned CCO's over the duration of construction to stay within the target. • The target rate identified is preliminary and is derived from the professional judgment of multiple Caltrans' managers and experience on other Caltrans' projects. This metric will be measured and trended for refinement throughout the life of this project • Reporting for this metric will commence when construction begins

Economic Benefits	**Disadvantaged/Small Business Enterprise:** [Total DBE/SBE/DVBE/MB payments to Date] ÷ [Total Subcontract payments to Date]
Description	• The current goal is achieve ≥30%. • Benchmark: This project will use an alternative procurement method called CMGC. As the project design is refined, the contractor will execute DBE/SBE/DVBE/MB subcontracts for specific portions of work. At 90 % design, the contractor will provide a schedule of when all of the DBE/SBE/DVBE/MB subcontracts will be signed. • The project will achieve the 30% goal by project completion. • The Project Team set an intermediate goal of 10% for all sub contracts in the Pre-construction phase. Total SB work performed amount = $ 40,702 Total Sub Contract payments = $ 1,018,761 The project has achieved a 4.0 % participation currently in the pre-construction phase